

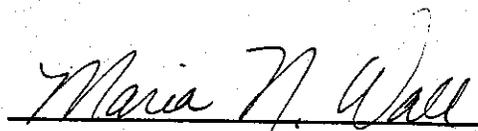
FEASIBILITY STUDY

**Interchange at US 74/76
and SR 1437 (Old Fayetteville Road)
near Navassa**

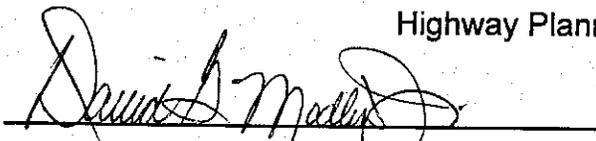
Brunswick County

U-3337

Prepared by
Program Development Branch
Division of Highways
N. C. Department of Transportation



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Date

FEASIBILITY STUDY

Interchange at US 74/76 and SR 1437 (Old Fayetteville Road) near Navassa

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I. GENERAL DESCRIPTION

This is a feasibility study for a partial cloverleaf interchange at the existing grade separation of US 74/76 and SR 1437 (Old Fayetteville Road) in Brunswick County (See Figures 1 and 2). The estimated cost of the project is \$2,700,000 (\$700,000 for right-of-way and \$2,000,000 for construction).

This study is not a detailed planning/environmental investigation. A feasibility study presents studied cross-sections for improvements, general corridors of improvements, and estimated costs of construction and right-of-way. This study attempts to identify any potential environmental, permitting, or other observed issues that deserve consideration in the planning and construction stages.

II. NEED FOR PROJECT

The studied improvements are needed to provide improved access between the Towns of Navassa and Leland. An interchange at this location would also provide direct access to Leland Middle School and North Brunswick High School, which are located within a half mile of the studied interchange. The existing interchange between US 74/76 and US 17 is located approximately 1.3 miles (2.1 km) south of the studied interchange. The existing interchange between US 74/76 and SR 1426 is located approximately 2.2 miles (3.5 km) north of the studied interchange (See Figure 1).

US 74 is classified as a freeway/expressway on the Statewide Functional Classification System and a freeway on the 1985 Wilmington Thoroughfare Plan. SR 1437 (Old Fayetteville Road) is classified as a collector on the Statewide Functional Classification System and a minor thoroughfare on the 1985 Wilmington Thoroughfare Plan. The studied interchange is not shown on the 1985 Wilmington Thoroughfare Plan.

US 74 is a four-lane, median-divided highway with full access control. SR 1437 is a two-lane, 24-foot (7.3 m) roadway with no access control. Land use in this area is residential and institutional.

Structure Number 43 carries SR 1437 over US 74/76. This bridge has a sufficiency rating of 75.8 out of 100. The existing bridge is 302 feet (12.8 m) long with a deck width of approximately 38 feet (7.9 m).

The following table is a summary of the traffic analysis for the studied corridor:

<u>Route/Description</u>	<u>Estimated ADT</u>		<u>Level of Service</u>	
	<u>1994</u>	<u>2020</u>	<u>1994</u>	<u>2020</u>
US 74/76				
without interchange	14,800	32,300	A	B
with interchange	15,650	33,300	B	C
SR 1437				
without interchange	3,350	4,150	B	C
with interchange	4,350	5,500	C	C
Interchange - southwest quadrant				
on ramp	1,700	2,600	A	B
off ramp	1,550	1,800	A	C
Interchange - southeast quadrant				
on ramp	1,550	2,250	A	B
off ramp	1,700	2,600	A	B

III. RECOMMENDATIONS

It is recommended that the existing grade separation at US 74/76 and SR 1437 be converted to a partial cloverleaf. A partial cloverleaf interchange on the south side of SR 1437 is recommended, because it would cause fewer relocations than a diamond interchange, at this location. SR 1437 would be widened to provide left turn lanes at the ramp terminals. The ramps would be single-laned with additional left-turn lanes at the terminals. Due to the limited sight distance caused by the vertical grade of SR 1437, it is recommended that signals be placed at the ramp terminals for improved safety. Bridge Number 43 would be widened to accommodate three lanes.

The recommended interchange would provide improved access between Leland and Navassa and provide direct access to the middle school and high school. There is adequate spacing between the US 74/76 interchanges north and south of the recommended interchange.

Moderate utility conflicts are expected.

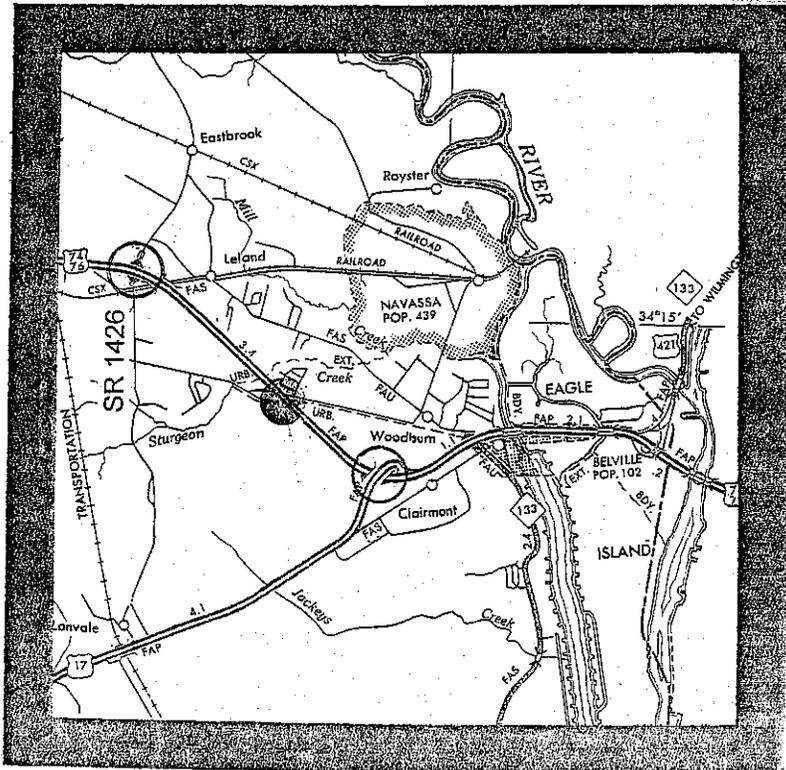
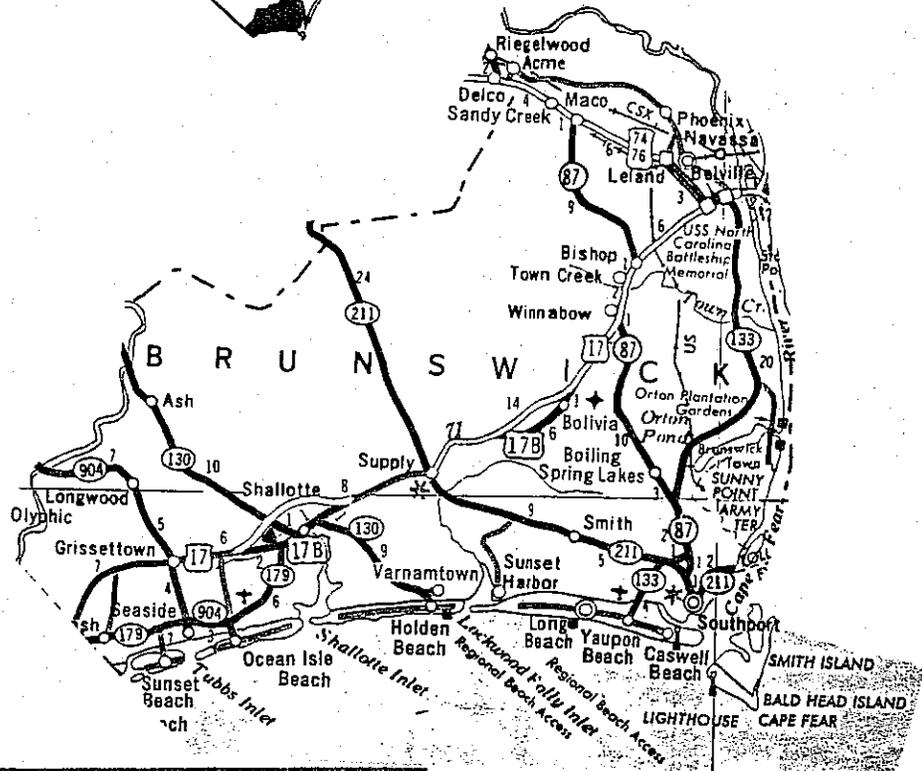
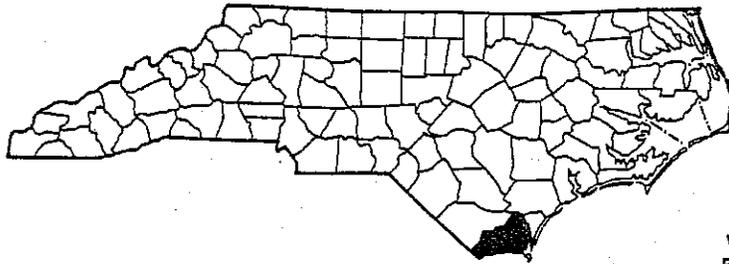
The estimated project costs for the recommended interchange are as follows:

Construction	\$2,000,000
<u>Right-of-way</u>	<u>\$ 700,000</u>
Project Total	\$2,700,000

IV. OTHER COMMENTS AND CONCERNS

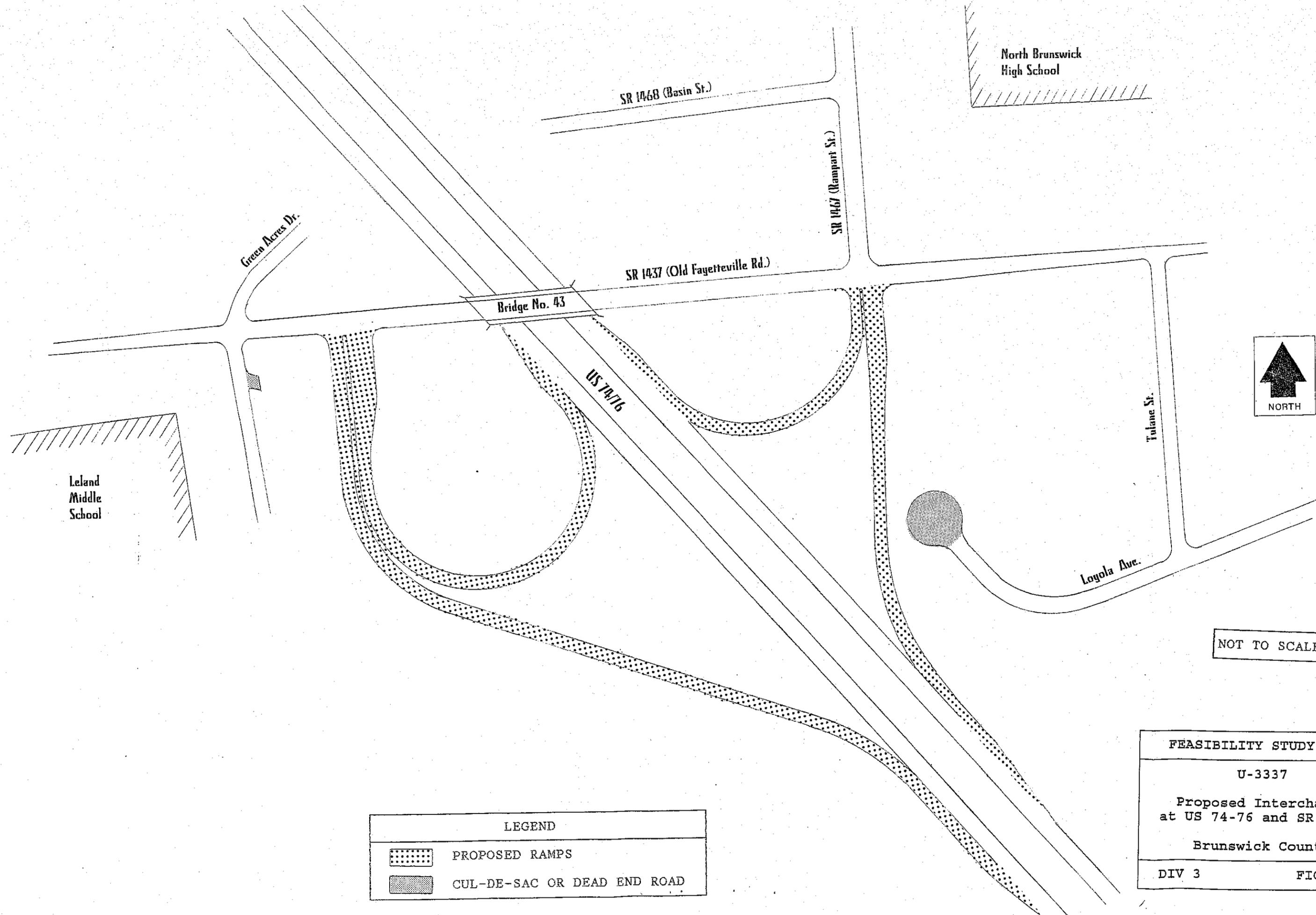
It is estimated that this project would require the relocation of five residences. Mobile home sites are being developed in the southeast quadrant of the existing grade separation. Utilities have been installed. Based on a property map from Brunswick County there may be eleven additional relocations by the time this project is constructed.

This project may involve placement of fill in wetlands, and may require a Corps of Engineers Section 404 Permit. No historical or architecturally significant sites are known to be within the limits of the studied corridor. Leland Middle School and North Brunswick High School would not be negatively impacted.



LEGEND	
●	RECOMMENDED INTERCHANGE
○	EXISTING INTERCHANGE

FEASIBILITY STUDY UNIT	
U-3337	
Proposed Interchange at US 74-76 and SR 1437	
Brunswick County	
DIV 3	FIGURE 1



LEGEND	
	PROPOSED RAMPS
	CUL-DE-SAC OR DEAD END ROAD

NOT TO SCALE

FEASIBILITY STUDY UNIT	
U-3337	
Proposed Interchange at US 74-76 and SR 1437	
Brunswick County	
DIV 3	FIGURE 2